

PYROTECHNICS

from Chicago!

The now and then newsletter of General Technics

This issue edited by Chuck Ott

Number 30

February, 1982



ROBERT HEINLEIN has always had a cute trick of being able to drop oddball references into his books in such a way that I feel I really ought to know what he's talking about. Now heaven knows that lots of writers love to show off their erudition and thereby make the reader feel inferior; I'm thinking particularly of a snotty story that was held up to me as an good example in a literature class, and which contained an incomprehensible French phrase in about every other sentence. Other writers like to make allusions to obscure books, drop in imitations of other writers' styles, construct funny plot parallels and all the rest of those wearisome stunts English professors are so enamoured of.

And also, of course, science fiction is full of writers who can sound authoritative without meaning anything. When I was Quite Small, I spent most of a month searching through the library and bugging my teachers to learn the meaning of the words "corolopsis" and "metathasm," as used by Jack Vance in *The Dying Earth*. You can guess how much luck I had.

But in this as in many other things, Heinlein has always been different. I grew up reading and re-reading his juvenile novels (a practice I've never seen any reason to give up), and I wanted desperately to be like the characters in them: knowledgeable, competent, full of history and mathematics and wonder. I wanted to be armed, as Mr. Heinlein's characters seemed to be, with some sort of intellectual ammunition for almost any situation that might come up. And I used to wonder, slogging through my mediocre school career, when that illumination was going to come.

I have long since discovered the secret.

Why learn things you don't need to know? Part of the reason is to become an educated man or woman, gaining respect from the world. Partly, it's for spiritual growth; as Ed Hanley wrote in *Pyro 28*, if you don't keep pushing your curiosity, you get a "flabby soul." But actually learning is like eating or sex; it may be necessary, but mostly you do it because it feels good, that's all.

So these days I read nothing because I think it will be good for me, I don't work at studying anything, I don't push myself at all. I just do exactly what pleases me ... and I wind up studying harder and more steadily than I ever did in college. And, just like the fellow in the well-known joke, I feel I'm getting smarter already.

For this article, I copied a whole bunch of references from various Heinlein novels and hawked them around to my friends. I knew what some of them meant, and others were things I'd been wondering about for years. As you might expect, I sent out a lot more questions than I got answers back. I've had to cut out some of the answers I did get for lack of space, and others because the researcher wasn't able to find out any information (or worse, not enough information to satisfy me). I was and am delighted with the responses I got.

In fact, since word of this project got around, people have been pulling me aside unasked to tell me their own favorite Things I Looked Up Because I Wondered What Heinlein Meant. Maybe we can do more of this sometime. I've got lots of questions left.

I hope you find something nifty you never knew before in the next few pages, as you enroll in

Uncle Bob's College of Gratuitous Knowledge

I had known Ricky half her life and if there was ever a human being honest as a Jo block, Ricky was she ... and Pete thought so too.

-- The Door Into Summer

A Johansson block is a rectangular block of metal, ground and polished to an exceptional flatness and accuracy of dimension. Each face is accurate to .00001 inch, and when rubbed together (a process called "wringing," used to remove any film of skin oil or dust), two or more of the blocks are held together by molecular attraction with a force up to thirty times that of atmospheric pressure. By this technique, larger blocks of any desired size can be made from the smaller ones.

The blocks may be used either for direct measurement, or as a calibration standard for other instruments, such as calipers and micrometers.

The blocks were invented by Carl Edward Johansson, who was born in Sweden in 1864. As a young man, he moved to America, where he worked in factories and attended college until 1885, when he returned to his homeland. There, he took a position as foreman and toolmaker in a government arsenal. It was at this point that he became dissatisfied with the existing measuring instruments. He made his first set of blocks in 1897, and worked for several years to improve them. In 1911, he left the arsenal to form his own company, which he finally moved to Poughkeepsie, New York in 1917. There his work gained wide recognition and came to the attention of Henry Ford, who purchased the company and the services of its former owner in 1924.

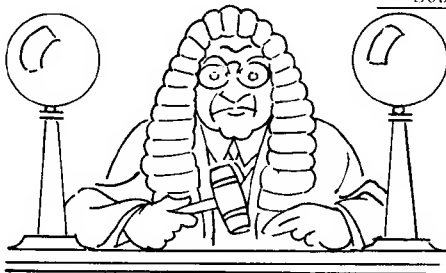
Johansson blocks are now made by a number of firms, some of them right here in Chicago.

Bill Leininger

She thought for a moment. "We want a change of venue."

"Where did you learn that word? Never mind, you had one when the department intervened. That ends it. Now keep quiet for a change."

-- Star Beast



"Change of venue" is a legal term. Venue is the court in which a case is tried, presumably in the county and state where the injury was committed. The prosecution selects the venue, the place where the case will be tried. The defense may move for a change of venue for any number of reasons, I'm told; a case we wrote up in our newsletter (*Chain Marketing & Management*) is being tried in Utah, and the defendant wants the venue changed to Florida, where its corporate headquarters are.

Another reason would be for the defense to get a more objective or sympathetic jury, presumably the basis here (I haven't read *Star Beast*). A mass murder suspect is more likely to get a fair trial out of the county that suffered through the crimes.

This all isn't very amusing, but then law usually isn't full of chuckles.

Martha Soukup

[In *Star Beast*, Betty got her change of venue when Sergei Greenberg of the Department of Space asserted superior jurisdiction over Good Old Local Judge O'Farrell, and conducted the trial himself. This is a change of venue without a change of location, since the trial actually takes place in G.O.L.J.O'F.'s courtroom. If you, too, haven't read the book, you'll be relieved to know that the situation is nothing so dire as mass murder, and everything works out just fine in the end.]

[The Grand Inquisitor's] faceless crew strapped a metal helmet on my head, some other arrangements were made at the control board. "Now look here, John Lyle." He pointed to a diagram on the wall. "No doubt you know that the human nervous system is partly electrical in nature. There is a schematic representation of a brain, that lower part is the thalamus; covering it is the cortex. Each of the sensory centers is marked as you can see. Your own electrodynamic characteristics have been analyzed; I am sorry to say that it will now be necessary to heterodyne your normal senses."

-- "If This Goes On ..."

Used in communications terminology as either adjective or noun, to heterodyne is to combine two different frequencies within an electrical circuit to produce new frequencies which are the sum and/or difference of the originals. Does it have meaning as Heinlein uses it here? With suspension of disbelief ... maybe.

If we posit that the electrochemical reactions by which our brain registers input from the various nerve endings corresponding to our senses have different frequencies for every sense, the possibilities of the Grand Inquisitor's device are excruciating, indeed. Imagine being able to taste one's sense of balance, hearing one's sense of smell, or sensing one's spacial relationships with the inner ear. Imagine the overload as your brain attempted to translate brand new frequencies into something manageable. The consequences might be painful for a while but the pain would quickly give way to total insanity and eventual death.

Fortunately, this whole thing has no meaning in terms of scientific possibility or human electrochemical reactions. We hope.

Will Saddler

[I was re-reading J. Ben Leiber's *Type and Typefaces* the other day, and was struck by his comment that the invention of writing was a stranger thing than we usually realize. How odd, he says, that a man can "speak" words with his hands, and another can "hear" them with his eyes!]

I once read about an actress who could use Italian so effectively to a person who did not understand Italian that she always made herself understood. Her name was "Duce." No, a "duce" is a dictator. Something like that. She must have had what the Mother Thing had.

-- Have Space Suit, Will Travel

Eleonora Duse, a contemporary of Sara Bernhardt, was an actress gifted with uncanny powers of expression. On her first appearance in Vienna, one of her Viennese critics wrote that the Duse played what was between the lines; she played the transitions. She did not merely play the characters, she also commented on them; as Hofmannsthal said, she knew more about Nora (in *The Doll House*) than Ibsen's heroine could possibly know about herself. Bernhardt's characterizations were essentially variants of her own personality, while those of the Duse were all completely different people. The only reason the Duse is less widely known to American audiences than the Divine Sarah is that her American tours were less extensive. America is the poorer therefore.

Donna Hinman

My first meal aboard I heard Captain Blackstone called "Major," although his shoulder pips plainly read "Captain." I got straightened out later. There can't be two captains in a Naval vessel so an Army captain is bumped one rank socially rather than commit the unthinkable of calling him by the title reserved for the one and only monarch.

-- Starship Troopers

Perhaps it's different in other countries, but the US Navy does not observe this custom.

Chuck Ott

... But no evolutionary quirk can be considered odd if you use the way octopi make love as a comparison.

-- Glory Road



THE OCTOPUS MATING PROCESS

The female octopus is approached by the male. If the female does not reject him, they begin a period of caressing which lasts for about an hour. At this point the two are totally oblivious to their surroundings. When the female is ready, the male changes color from a reddish brown to a light blue.

The male octopus carries his sperm in the third arm from the right. On this arm is one sucker disk which is twice as large as any other. It is this overlarge sucker which identifies the octopus as a male. (It is doubtful whether female octopi suffer from Sucker Envy.)

After caressing, the male's sex arm reached inside the female's mantle cavity. The sperm issues from the oversize sucker, slides along a groove in the tentacle and is then delicately placed by the tentacle tip into packets located near the egg tube. The entire mating process takes place with the octopi holding each other at arm's length.

Mating lasts up to several hours, at the end of which the female pushes the male away and they go their separate ways. The female mates only once in its lifetime, although the male may mate several times, always with different females.

After a period of from three weeks to two months, the female finds a cave in which to lay her eggs. As each egg emerges from the egg tube, it is fertilized by the patient sperm cells. The female attaches the eggs to the cave walls in clusters. Each cluster contains as many as 4000 eggs, and a female can produce up to 50 clusters.

The parents die at about the same time the eggs hatch. The young are carried about by the current for about a month and then settle to the bottom as adults.

Of the 200,000 octopi born, approximately three will reach maturity.

Phil Foglio

[I was reading Theodore Sturgeon's *Venus Plus X* the other day and came across this: "...octopods who, when in the presence of the beloved, wave a tentacle the end of which breaks off and swims by itself over to the female who, if willing, enfolds it and if not, eats it." Obviously, this little-known field of marine biology holds a peculiar fascination for science-fiction writers. I've been able to confirm that the male's third-from-the-right (what we might call the "social") tentacle sometimes is broken off and left, but I haven't found anything more about the swimming business. Hey, Cap'n Al! Is there a marine biologist at Woods Hole who takes an affectionate interest in this subject and could tell us more? I'm sure we'll all be fascinated.]

"Hmmm ... I think you need inhibition." [said Mary.]

"Me? Never any violence with me; I'm the 'Barkis-is-willing' type."

-- The Puppet Masters

I haven't read *David Copperfield* in fifteen years, so the details are pretty fuzzy, but I believe Barkis was the coachman who drove the youthful David to and from the train station on his way back and forth from boarding school. David shared his lunch with Barkis, a lunch which had been put up by his old nurse's lilly-white hands. The way to Barkis's heart was definitely through his stomach. He licked the crumbs off his beard and told David to tell his nurse that "Barkis is willin'." David blinked a bit and thought, "Willin' for what?" but he faithfully passed the message on. The next time he needed a ride from the train station, Barkis and his old nurse were married.

Marriage is what was on Barkis's mind.

Donna Hinman

"... You know that skit where you are a tramp? [The Emperor said to Lorenzo Smith.] First you try to milk a cow -- no luck. Finally you end up eating out of the cat's dish -- but even the cat pushes you away?"

I admitted it.

"I've almost worn out my spool of that. I laugh and cry at the same time."

"That is the idea." I hesitated, then admitted that the barnyard "Weary Willie" routine had been copied from a very great artist of another century.

-- Double Star

The "very great artist" was Emmett Kelly.

Bill Roper

"That light is from Vega?"

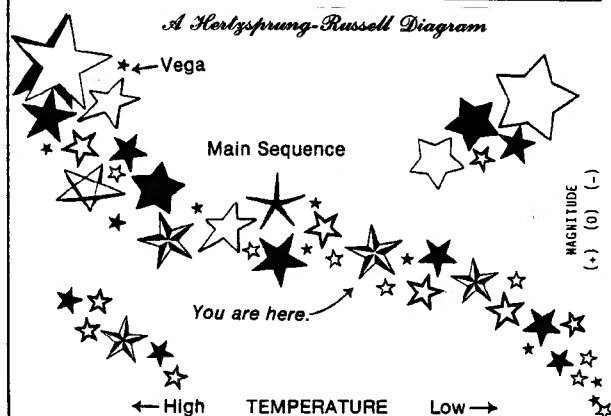
"That stuff? That's artificial sunlight. If they had used real, bright, Vega light, it would look ghastly. Like a bare arc light. Vega is 'way up the Russell diagram, you know."

"It is?" I didn't know the spectrum of Vega; I had never expected to need to know it."

-- Have Space Suit, Will Travel

The "Russell diagram" is actually the Hertzsprung-Russell diagram, a plot of stellar luminosity against spectral class. The spectral class of a star is closely related to its color and surface temperature. Most stars, when plotted on a Hertzsprung-Russell diagram, lie on a band called the "main sequence." On this band the bright stars are hot and white, or even blue-white, while the dimmer stars are cool and red. A yellow star like the Sun is found in the middle. Vega is a hot white star, much brighter than the sun, and so appears much higher on the diagram.

Glenn McDavid



They were encouraging my body to repair itself -- not scar tissue but the way it had been. Any lobster can do this and starfish do it so well that you can chop them to bits and wind up with a thousand brand-new starfish.

-- Have Space Suit, Will Travel

Wrongo. Some species in the genus Linckia and others regenerate readily from a single arm, but this is about as well as a starfish will do, making the maximum number of "bits" six: five arms and the central disk. This form of asexual reproduction creates a cute stage of life called a "comet form," because the tail-like arm grows a little four-pointed star at its head.

Other invertebrates do much better. Some of us have seen those indestructible little cross-eyed planaria sliced up in bio class. Better yet is the ribbon worm, a long skinny creature that can reportedly regenerate from any fragment longer than it is wide (that isn't eaten first). Theoretically you can grow 200,000 clone ribbon worms from one unfortunate donor.

Martha Soukup

I opened the small blade of my knife and handed it to Peewee. "With your shield or on it, soldier."

-- Have Space Suit, Will Travel

"With your shield or on it" was how Spartan soldiers were traditionally told to return from battle. Greek soldiers who ran away from battle threw away their shields, which were large and heavy, in order to run faster. Thus to return from battle without a shield was to be suspected of cowardice. "With your shield or on it" were therefore the only honorable ways to return from battle.

Glenn McDavid



"Is that what you call it ... LummoX? It doesn't seem strong enough."

-- Star Beast

A lummoX is a "large clumsy person," though there is a connotation of stupidity when used in informal conversation.

For example, when the period bell rang in high school and some dopey oversized kid, relieved that his torture was over, came barreling out of his math class, smashing into you and the rest of the crowd in the hallway, you might have said, "Watch where yo goin' ya big dumb lummoX!"

If the big dumb lummoX didn't pause for a moment to wipe your face on the floor, you might stop to wonder (as this article purportedly is to explain) where the word comes from.

Well, too bad! You're out of luck. The origin of the word is unknown!

-- Tim Allen

[Apparently there are some things man was never meant to know, and this seems to be one of them. However, your Editor considers this a basically unsatisfactory situation. Surely this word got started somewhere, but where and when? The Oxford English Dictionary doesn't even list it, and American Slang shows no derivation. I suspected that "lummoX" might have been a fictitious character someplace, but neither Benet's Reader's Encyclopedia (a positive mine of such information) nor Horn's World Encyclopedia of Comics lists such a name.

I offer a few possibilities, although I really can't recommend any of them. "LummoX" might conceivably derive from either of two British slang expressions: "lummy," meaning especially fine, or "lumme!" an all-purpose exclamation. In the first case, the word would have undergone a reversal of meaning, which is not uncommon, and in the second case it might be used in the sense of a person who causes you to cry "lumme!" Alternatively, could this name be degraded from "lump," as in Goldsmith's Tony Lumpkin?

To sum up, I haven't got a clue as to what the hell Heinlein thought it meant.]

"You seem to be thinking [Jubal Harshaw said to Ben Caxton] that Dorcas is the prospective bride. It's Miriam who is studying Arabic."

... "But Miriam was always snapping at Stinky --"

"And they trust you with a newspaper column -- ever watch a bunch of sixth-graders?"

"Yes, but -- Dorcas did everything but a nautch dance."

"That is Dorcas' natural behavior ..."

-- Stranger in a Strange Land

Nautch dances are performed by troupes of women in India for various occasions. Indian men seem to like them and perhaps even find them erotic, but most Westerners report merely an interminable round of shuffling, chanting and highly stylized posturing. Worse, the ladies are so encumbered with jewelry, cosmetics and layers upon layers of fancy silks that they hardly appear even graceful, much less beautiful. Perhaps this explains why Dorcas failed to snare the esteemed Dr. Stinky Mahmoud.

Chuck Ott

One winter shortly before the Six Weeks War my tomcat, Petronius the Arbiter, and I lived in an old farmhouse in Connecticut.

-- The Door Into Summer

Petronius the Arbiter (died AD 66) is remembered for two things: his "Satyricon," considered one of the finest pieces of Latin literature, and his classy suicide. Titus Petronius Niger wormed his way into the emperor Nero's favor, becoming his ultimate judge of taste and elegance ("eglantine arbiter," a later writer styled him), and arousing the jealousy of another powerful favorite, Tigellinus. This unpleasant man bribed a slave to implicate Petronius in a conspiracy against Nero. On realizing his case was hopeless, Petronius planned a remarkably matter-of-fact suicide. He had his veins cut, and opened and closed them through a day of regular business: composing verse with friends, eating dinner, managing his slaves and even napping, as though his forced death was a matter of chance. And instead of the usual protestations of loyalty to his emperor, he embarrassed Nero by sending him a detailed listing of the ruler's debaucheries.

The Satyricon is a satiric, Odyssean adventure of a man cursed by Priapus with impotence, who travels with two unlikeable companions in search of a cure. It contains the best surviving fragment of Vulgar (common) Latin.

Martha Soukup

Sure, a torchship can go as far as necessary, even across the Galaxy -- but who is going to be interested in receiving its real estate reports after a couple of ice ages have come and gone? The population problem would be solved one way or another long before then -- maybe the way the Kilkenny cats solved theirs.

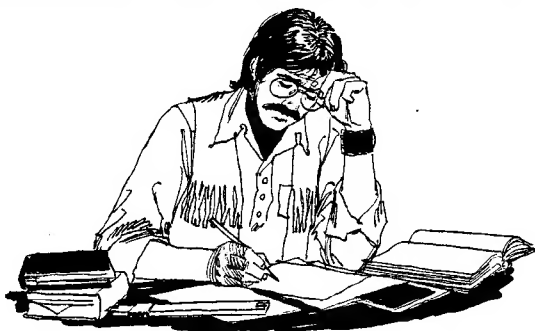
-- Time For The Stars

The cats of Kilkenny did indeed do away with each other to relieve an overcrowding problem. The entire grisly story originated in the Middle Ages and was chronicled by Mother Goose:

There once were two cats of Kilkenny
Who thought that two cats were too many.
So they scratched and they bit,
They clawed and they spit,
And instead of two cats -- tweren't any!

Now we all know that Mother Goose was really Charlemagne or somebody like that, and all those little bits of doggerel were really political satires of the time, but I was unable to track down the roots of this one. Any information from you folks would be read with great interest.

Phil Foglio



ISAAC NEWTON'S RECIPE FOR NATURAL, ORGANIC, HOME-MADE CUBE ROOTS. If all those calculator fast-numbers are softening your brain, here's a chewy method which will not only let you make cube roots at home from scratch, but actually, any n th root of any positive number y . Newton's method depends on successive substitutions: that is, we'll make a guess, crank the guess through an equation to get a better guess, then go back and do it again until the number going in is the same as the number coming out. When that happens, we've got our root.

Our guess is in two pieces: a reasonable number x , and a fudge factor ζ (not the usual notation, but my typewriter doesn't have Greek letters). That is:

$$(x+\zeta)^n = y$$

For reasons you'll see in a moment, we can assume that x is a very good guess, and therefore our fudge factor ζ is very small. Now, we can expand that left-hand term using the Binomial Theorem you learned in high school to get a series of terms:

$$(x+\zeta)^n = x^n + nx^{n-1}\zeta + \frac{n(n-1)}{2} x^{n-2}\zeta^2 + \dots + \zeta^n$$

Since we have already decided that ζ is very small, all those ζ^2 to ζ^n terms must be a whole bunch smaller -- and besides, it's just a fudge factor anyway, and will be corrected later. So we can simplify our lives by throwing out all the right-hand terms after the second, to get

$$(x+\zeta)^n \approx x^n + nx^{n-1}\zeta$$

where \approx means "approximately equal to." Now we play around with it to make it easier to work with

$$y = (x+\zeta)^n \approx x^n + nx^{n-1}\zeta$$

$$nx^{n-1}\zeta \approx y - x^n$$

Adding x to both sides and messing around:

$$\star (x+\zeta) \approx \frac{y+(n-1)x^n}{nx^{n-1}}$$

This is the equation we'll work with. $(x+\zeta)$ is the root we're looking for, y is the original number, and n is the root. If we want the 3rd root of 87, it looks like this

$$(x+\zeta) \approx \frac{87+2x^3}{3x^2}$$

Now we make a first guess for x -- let's call it 4. When we substitute 4 in our equation, $(x+\zeta)$ comes out to 4.479.

When we go back through the equation again, we make our guess $x=4.479$. $(x+\zeta)$ now works out to 4.431.

The third time around, $x=4.431$ going in, and $(x+\zeta)$ is 4.431 coming out. If we tried again, we'd get the same number. So the process has settled out, and 4.431 is the cube root of 87.

You can see now why we assumed that x was a good guess; if it isn't, all that happens is that we go around a few more times to reach our answer. What we've done is to refine the value of our fudge factor until it reaches zero. When your answer has a zero fudge factor, that's the same as having an exact answer.

"... we are spending more per student than is any other state save California and New York."

"Well, what's wrong with that?"

"What's a dangling participle?"

I didn't answer. He went on, "Why did Van Buren fail of re-election? How do you extract the cube root of eighty-seven?"

Van Buren had been a president; that was all I remembered. But I could answer the other one. "If you want a cube root, you look in a table in the back of the book."

Dad sighed. "Kip, do you think that table was brought down from on high by an archangel?"

-- Have Space Suit, Will Travel

Incidentally, if your calculator has a button to extract roots automatically, this is pretty much how it does it. That's why the display goes blank for a moment when you ask for a complicated root: your machine is going through a lot of successive substitutions.

What's a dangling participle?

Reading this question, the answer may have escaped you, as well. It certainly did, if you didn't recognize the dangling participle in that sentence. A participle is a verb form that acts as an adjective: "reading," in the example. It's said to "dangle" when it doesn't modify the noun it's supposed to modify, or if it's unclear which noun it does modify. In this case, "reading" logically should have modified "you," but grammatically, it modified "the answer." Another grating example: "Entering the spacecraft, the interior looked squalid."

Knowing my readership, I'd say that's explanation enough.

Martha Soukup

Martin Van Buren (1782-1862), eighth US president, would empathize with former presidents Carter and Ford. A man of keen political savvy (the "first national politician"), he was elected in 1836 with a strong vote.

But he couldn't survive the "Panic of 1837," a severe economic crunch that came two months after his inauguration. The nation voted its pocketbook against him more than for William Henry Harrison, a man who took no stands but let himself be plugged as a nice, hardworking farmer with a log cabin, and who is best known for immediately dying in office.

Van Buren had a chance for a comeback in 1844, but the newly expansionist majority didn't forget that he hadn't worked to annex Texas while in office; they instead nominated and elected James Polk (remember him?).

Martha Soukup

"I am aware [Peewee Reese said to Kip Russell] that people have called everything from weather balloons to street lights 'flying saucers.' But it is my considered opinion -- by Occam's Razor -- that --"

"Whose razor?"

"Occam's. Least hypothesis. Don't you know anything about logic?"

"Not much."

-- Have Space Suit, Will Travel

Occam's Razor is a principle of a school of logic fathered by William of Occam (or Ockham), a Franciscan monk who lived circa 1284 to 1347.

Occam stated, "a plurality is not to be posited without necessity." That is, when trying to decide which of competing theories of equal plausibility should be chosen, pick the simplest one. Or, explanations of unknown phenomena should be sought first in terms of known quantities. (If you see a flying saucer don't assume they're more where that came from, and besides, it's only swamp gas anyway.)

Tim Allen

[Iunio] was smaller than I am but I would not want to meet him in an alley. Nor at the palisades of a castra.

-- Have Space Suit, Will Travel

"Castra" is a Latin word meaning "military camp." Its only use in English is to form the adjective "castral," pertaining to a camp. Incidentally, a "palisade" is a fence of stakes, built for defense around your castra.

Martha Soukup

But how about the man who claims to know what the Great Architect is thinking? The man who claims to be privy to His Inner Plans? It strikes me as sacrilegious conceit of the worst sort -- this character probably has never been closer to His Trestle Board than you or I. But it makes him feel good to be on chummy terms with the Almighty ...

-- "If This Goes On ..."

[Editor's note: I always expected there would be some disagreement about some of these references. I just never expected which ones they would be.]

A trestle board is a board placed on two

trestles which have been set parallel to one another, serving as an eating table. Hence, being close to "the Great Architect's" trestle board is to be invited to sit at dinner. A sacrilegious notion indeed!

And what's a trestle? A horizontal plank of indeterminate length having two legs at each end attached at a 45° angle. Sound familiar? It should, it's a sawhorse!

Will Saddler

A trestle board is nothing more than another name for a drafting board. It is called that because of the trestle system used in its leg supports.

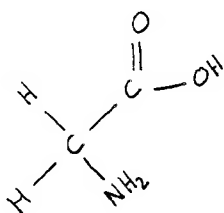
Phil Foglio

A trestle board is what holds a big model railroad set, the kind that fills your basement and your Dad won't let you play with. Presumably the Great Architect stands by His trestle board working the controls while you load and unload little milk cans from itty-bitty boxcars -- or whatever it is you do for a living.

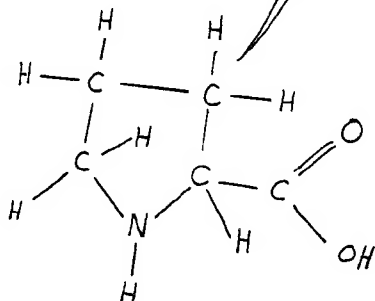
Chuck Ott

[The Perplexed Reader is invited to take his pick of these images, depending on whether you prefer to visualize God as the Head of the Dinner Table, the Cosmic Engineer at his drafting board, or the Great Boy with his Toy.]

Primordial Ocean Funnies



IS IT
PEPTIDE
YET?



HIGGINS

GENERAL TECHNICS

is an organization of fannish techies (and not techish fannies, as some wisenheimer reported) who pool information, resources and experiences in pursuit of a good time and an occasional profit. The group meets irregularly at cons, hamfests and private Berserker Weekends.

Becoming a member assumes you're willing to contribute to the group. This entails answering questions (at the very least) by phone or SASE, concerning your own personal areas of expertise. So that people know what those areas are, you must submit a completed questionnaire and be listed in the General Technics Information Handbook. To obtain a questionnaire, send an SASE to:

Jeff Duntemann
301 Susquehanna Road
Rochester, NY 14618

That done, return the questionnaire with a quantity of first-class stamps and one American dollar bill. You will receive PyroTechnics until your stamps run out.

LETTER

Blue Genes On

Jeff (Our Glorious Leader) Duntemann seems to be worried that by allowing people carrying bad genes to reproduce we are dooming our civilization. There is some truth to this idea, sometimes known as the Marching Morons Theory, but I am not nearly as concerned as Jeff. In the first place, the support of the disabled is no new thing for our species. Remember the skeleton of the aged Neanderthal who had suffered a debilitating injury as a youth? Someone cared for him for most of his life. Also, much of the increase in disabilities for our population can be traced to environmental causes. Late-onset diabetes, generally believed to be caused by long term consumption of refined sugar, when graphed in cases per year follows the graph of sugar consumption with about a twenty year lag.

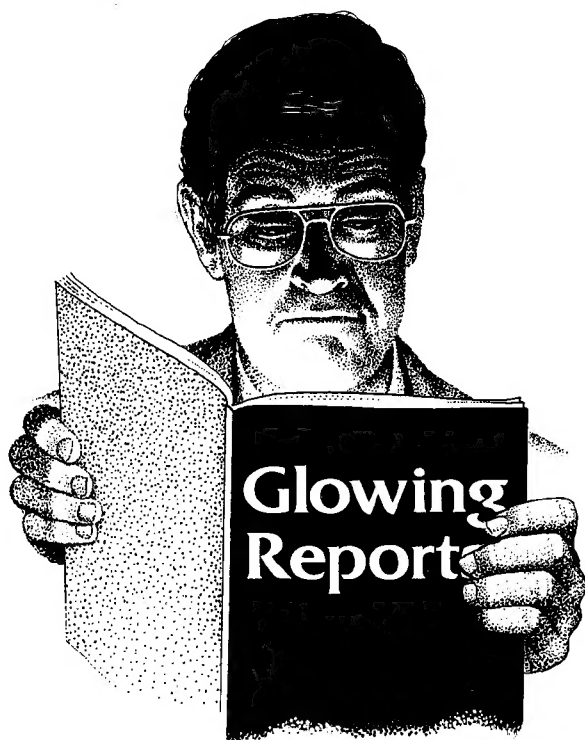
Admittedly, there is still a problem. Many diseases are known to be hereditary, and the tendencies towards others may be. Now, who is to say who gets to breed and who does not? The sterilization program in India ran into a lot of problems caused by abuse. But, unless we can develop a form of genetic repair service, it may be necessary to have something like Niven's birth-right program. Or will it?

I read an interesting article recently about genes. It seems that most of the DNA in our cells has nothing to do with heredity. Indeed, the information to be passed on occupies only a small portion of the gene strand. What does the rest do? The same article mentioned that there was evidence that DNA is to some extent self-policing. "Bad" segments are replaced by "good" segments, copied from elsewhere in the strand. This may explain why studies of Hiroshima and Nagasaki found about the expected level of radiation related illness, but only a fraction of the mutations.

At any rate, I'm not worried ... much.

Rod Smith





Glowing Reports: *A Selection of Book Reviews*

THE SOUL OF A NEW MACHINE

by Tracy Kidder (Little, Brown \$13.95)
Review by Bill Higgins

Tom West, a Data General engineer, has just infiltrated a computer room where he doesn't belong. "Along the far wall, at the end of the trench, stood a brand-new example of DEC's VAX," attended by a DEC installer. "In a little while, the technician packed up his tools and left.

"Then West closed the door, went back across the room to the computer, which was now all but fully assembled, and began to take it apart.

"...West spent most of the rest of the morning pulling out boards; he'd examine each one, then put it back... he counted the various types and quantities of each [chip]... he left the machine exactly as he had found it.

"I'd been living in fear of VAX for a year," West said afterward... "I think I got a high when I looked at it and saw how complex and expensive it was. It made me feel good about some of the decisions we've made."

"Looking into the VAX, West had imagined he saw a diagram of DEC's corporate organization... The machine expressed that phenomenally successful company's cautious, bureaucratic style."

Thus Tracy Kidder sets the scene for the creation of Data General's own new computer, the Eagle, under the careful management of Tom West. His book The Soul of a New Machine follows the DG engineering team through the Eagle's two-year gestation period.

Kidder does a good job outlining the nature of the computer marketplace in the late 1970s and the need for Data General to produce a 32-bit "supermini" machine to compete with DEC's newly introduced VAX. West proposed a crash program to develop the new computer in a hurry. His group of thirty or so engineers mixed a few seasoned veterans with a majority of youngsters just out of school-- unusual for a project of such importance to a company.

Designing a modern computer takes about equal parts of software and hardware. The hardware team

for the Eagle nicknamed themselves "the Hardy Boys;" similarly, the programmers writing the machine's microcode became "the Microkids." Kidder follows each group through its challenges as the Eagle slowly takes shape. People work under tremendous pressure, first to turn ideas into real electronics and code, then to navigate the frustrating debugging process. Their personal lives dwindle away as sixty-hour weeks become commonplace.

Kidder's book is not really about machines, but about the people who build them. Such a work is always a welcome addition to the literature of technology. His narrative, a clone of the New Yorker-style profile (though it was actually published in The Atlantic), is completely accessible to the reader unfamiliar with computers; it is also compelling reading for the expert. It gives an authentic feel for the computer field's dizzying complexity, without letting it overwhelm the characters in the foreground. When technical explanation is called for, it is at least adequate and sometimes superb.

The tension of approaching deadlines, the midnight programming, the temporary glee that comes from leaping one more hurdle-- all are here. After watching himself and his buddies becoming more and more obsessed with the Eagle, one Microkid gave up juggling nanoseconds, leaving a note: "I'm going to a commune in Vermont and will deal with no unit of time shorter than a season."

What kind of people built this machine? "After the M/600, his last machine, had been sent to dozens of customers, a defect had cropped up in it-- an important one, which, among other things, prevented the machine from playing Adventure. If he'd tried to play the game in the lab, they'd have found the problem and fixed it cheaply... Rasala resolved that he would never declare a machine debugged again until it had mastered Adventure. Now the time for Eagle to do it had come."

Obviously, these are our kind of people.

THE NEW SOLAR SYSTEM

Edited by J. Kelly Beatty, Brian O'Leary and Andrew Chaikin (Cambridge University Press, 1981 \$19.95)
Review by Bill Higgins

The present hiatus (for the USA at least) in remote planetary exploration can serve as breathing room. Scientists are comparing planet with planet, probe image with telescopic observation, American data with Soviet, in an effort to produce an integrated picture of the worlds in our neighborhood. Those of us who helped pay for two decades of wonder-filled discovery are well served by The New Solar System.

One can buy several coffee-table books featuring full-page spacescapes and easy Reader's Digest text, and some are enjoyable indeed. But this isn't that sort of book.

Its text is technical enough to enumerate specific detail of planetological findings, yet accessible to an interested layman. Not for the kids, but less dull than Scientific American. Many of the most accomplished men in the planetary sciences wrote chapters: James Van Allen; Eugene Shoemaker, involved since the days of Ranger and Apollo; Bradford Smith, head man for the Voyagers at JPL; William K. Hartmann, author of several popular astronomy books and a painter too. (Amusingly, their bibliographies cite each others' works in nearly every case.)

Sensibly, the book is organized by the phenomena studied, rather than by the Mercury-Venus-Earth sequence often seen. There are chapters on the Sun, magnetospheres, cratering, planetary atmospheres, rings, and the origin of small bodies.

The cliché "lavishly illustrated" cringes when faced with TNSS. The average is probably more than two illustrations a page, not just the brilliant Voyager, Viking, and Mariner photos, but graphs, maps, photomicrographs, and paintings by Don Dixon, Jon Lomberg, Charles Wheeler, and Hartmann. The

editors managed to go to press fast enough to include the November 1980 encounter of Voyager I with Saturn. The glossy paper enhances the pictures, which are in color wherever possible. They are rarely as large as half a page, but mostly complement the text's scientific exposition.

Twenty bucks is a bargain price for a collection this good. If you're already familiar with astronomy, and want to nibble at the science behind those lovely shots of Saturn or the Jovian moons, this is certainly the book of choice.

THE DEVIL'S DP DICTIONARY

by Stan Kelly-Bootle (McGraw-Hill, 1981 \$7.50)
Review by Bill Higgins

Before vanishing into the Mexican mountains Ambrose Bierce left us with The Devil's Dictionary, a cynic's view of language and the poor creatures who speak it. Now Stan Kelly-Bootle has attempted to follow Bierce's act in a modest way, giving us a sarcastic, witty guide to that most bewildering of fairylands, the world of data processing. To be indispensable to the student of computing, such a book should be funny, it should be comprehensible, and it should be inexpensive.

Only the first requirement, alas, is fulfilled. Kelly has packed not only definitions, but the fruits of an entire lifetime of jokemongering, into this volume. Here we have Prop-Rite, the aerosol spray that "protects your software instantly... Apply sparingly to disks, tapes, and listings;" the LINO (Last In, Never Out) register, and the "middle-out" approach to programming, greatly superior to both the top-down and the bottom-up approaches.

Unfortunately, though there are plenty of laughs in here, many of them are inaccessible. If you have an extensive familiarity with commercial computing, along with a smattering of computer science and artificial intelligence, I'd guess you might get 80 or 90 percent of the gags. A casual computer user will probably manage about 30 percent. And that's not enough reason to shell out \$7.50 for a paperback! So the verdict is this: you might lay it on your favorite fanatical hacker as a gift, but we ordinary mortals won't understand most of it, so don't bother with us.

I cannot, however, resist giving you just a bit of Kelly-Bootle's best:

NUMBER CRUNCHER-- n. A heavy device for testing the compressibility of numbers. The traditional method, pioneered by Control Data Corporation, is to subject each number to progressively denser FORTRAN programs until all 60 bits squeak.

SERIAL-- adj. Being or pertaining to just one damned thing after another.

DOWNTIME-- n. The period during which a system is error-free and immune from user input.

AIBOPHOBIA-- n. The fear of palindromes.

UNEXPECTED PLEASURES

by Chuck Ott

Among my other endearing qualities, I have two personality traits that strongly influence my science fiction collection: I'm cheap, and I have no taste. As a result, my shelves are full of lurid paperbacks with unappealing titles, most of which were picked up for a quarter in various thrift shops and used book stores. I want to tell you about four old books in particular, all of them crumbling with age now and very difficult to obtain. You may wonder why I bother to mention them at all, since you probably will never find copies of them, and particularly since most of them aren't all that good anyway.

But all of these books are special in this way: since I was expecting nothing from them, I was pleasantly surprised to find good stuff in them. I love picking up an unpromising trashy-looking book and finding that it's full of wonders and neat stuff. That, to me, is what science fiction is all about.

CLAIRE'S BOY

Paul Gadzikowski



For example, how can you find a worse title than **DOOMSDAY 1999** by Paul MacIyre (Ace, 1962, 40¢)? The cover shows a man running away from an exploding factory whose principal feature appears to be a Van de Graaf generator ten stories tall. Crude stuff, no doubt ...

...only it isn't! Written by a British professor of medieval history, this is an after-the-bomb story of an England invaded by (successively) the Russians, the Americans, the Chinese, and finally by a funny new type of midges that swarm in their millions all year long, and which burn to death anyone who comes near. A man named Angus, who seems to be immune to the midges, wanders through this hard-scrabble landscape examining the desperate societies of the survivors. Among these are the brutal concentration camps run by guards who answer to a mysterious group of white-lab-coated "scientists."

Angus said ... "What do you do here?"

... "We carry out experiments," the young man said. A vestal virgin explaining that she guarded the sacred flame would have used the same tones. Experiments were very important things, obviously.

Later Angus meets their Director, who explains that the Experiments are performed for ritual effect and are actually "what used to be done by sixth form boys at school." The whole book is full of neat little touches like that; it's well written, knowledgeable and thoughtful. Eventually Angus discovers what the midges really are and why he isn't burned by them.

Here's another terrific title; Murray Leinster's **WAR WITH THE GIZMOS** (Gold Medal, 1958, 35¢). The gizmos are blobs of living, organized gases who like to glom on to people's faces and suffocate them. Pretty scary, boy. As it turns out, the gizmos can be killed a whole lot easier than houseflies. They are susceptible to flame, sprinklings of water, bad smells, electricity and the spinning blades of electric fans. All of this makes it pretty hard to see the gizmos as a threat to all humanity.

What is nifty about the gizmos, and this book, though, is that Leinster has managed to invent a monster that really can't get you as long as you keep your head beneath the covers. The gizmos can't pass through closely-woven fabrics, you see, so as long as you keep the sheets pulled over your head you're okay. But if you peep out to see whether the monsters are still there ... POW! they getcha!

I bought Michael Resnick's **REDBEARD** out of the three-for-a-dollar bin at Woolworth's. It's published by Magnum, who are carrying on for the old Lancer Books imprint, and as far as I know are never sold for the ostensible cover price. The Kelly Freas cover is good-looking but shows a redheaded barbarian much like Conan, and that's what I expected to read. Instead, Redbeard is a real, well-developed character. He is the only non-mutant in a colony of mutants after the bomb drops, and he can't understand why the leader of the colony, who he hates, keeps him alive. Redbeard strikes out alone in the world to try and raise an army to kill the mutant leader, and fails ignominiously, and is still suffered to live. In the last pages of the book, Redbeard finds out just why he's been kept alive, and just what that knowledge is going to cost him. This book is a genuine tragedy; the hero makes a terrible but utterly inescapable choice that obliges him to give up what he loves most, and he is enough of a real person that I cared about his choice. Maybe it wouldn't have had such an effect if I had been expecting more from this book, but it made me melancholy for a week.

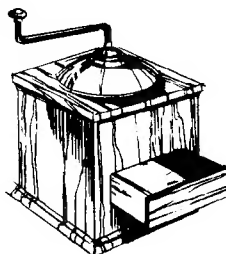
Finally, another book with a monster on the cover and a great title, John Brunner's **THE ASTRO-NAUTS MUST NOT LAND** (Ace Double, 1963, 40¢). It seems that the first expedition to Alpha Centauri has come back, and the crew have distressingly been changed into ugly, scaly monsters. Moreover, giant images of other ugly scaly monsters have been appearing in the sky over Earth, causing, as you might imagine, much loose talk. The book concerns the solution to these problems.

What saves this one is Brunner's interesting theme about "hyperspace," which is how the Alpha Centauri ship traveled. Hyperspace is usually described as being a gray no-color, or else a psychedelic light-show. In this book, one crewman describes hyperspace as "like normal space, only more so."

What he means is that hyperspace is completely, uniformly Euclidean and Newtonian. Instead of the funny space curvatures, c speed limit, mass changes and so forth that characterize our Einsteinian space, hyperspace is smooth and common-sensical. Continuous acceleration there increases your speed without limit, light travels in lines, mass is a constant at any velocity. It is, in other words, a nice place to live.

The sky monsters, who turn out to be the ordinary inhabitants of hyperspace, explain that our universe is a local anomaly within the larger world they live in. The reason we are obliged to live in such a slum district is that we were exiled here (that is, our remote ancestors) in retribution for some unspecified sin. If we're good, maybe they'll let us back into Euclidean space. Which is, I thought, a pretty neat idea.

So there you are. You really can't judge a book by its cover.



TECHIE TOY of the MONTH by Jeff Duntmann

Networking is a riot, as various hangers-on to Plato and Arpanet will concur. You don't even need a computer, although these days the difference between computers and terminals is growing ever more academic. Whatever your keyboard, though, you need a modem, and recently I laid hands on a beaut.

The D.C. Hayes Smartmodem is pretty much everything you could ask for in a modem, with the exception of high speed. If you can sit for 300 baud, the price of \$240 mail order will sound real fine. Here's what the Smartmodem can do:

1) Dial the phone. It's a direct connect device, with a modular plug on the end of its cord. If you have TouchTone service it will tone dial, or you can play it safe and tell it to use pulse dialing.



2) Answer the phone. The Smartmodem will monitor the phone line and answer either immediately upon detecting a ring, or after a set number of rings (changeable anytime) from 1 to 10.

3) Set baud rate automatically. The gadget will sample and adjust to any baud rate from 300 on down.

4) Let you hear the quality of the connection. There's a speaker in the box which can be switched on at any time to let you hear what's actually happening on the line.

5) Key a transmitter. The Smartmodem's reed relay can handle a full amp and is under full software control. If you wire a ham radio transmitter interface to resemble an RJ13 telephone outlet, the transmitter will "look" like an RJ13 device to the Smartmodem, which then keys the transmitter as required for half-duplex radio communication.

6) Send Morse code. (!) To meet FCC ham radio rules when radio networking, the Smartmodem can send any amount of text at 20 WPM, primarily for station ID during transmissions.

All this stuff is done by a Z8 single chip computer on the modem board. It's a simple, tight design that fits in a real small box. A row of LEDs on the "front panel" let you know if the line is on hook, whether your in originate/answer mode, and whether or not data is on the line.

Interface to the host computer or terminal is through a standard RS232C port. All commands are passed through the serial port, so there is no hardware dependency. Any gadget with an RS232C port can talk to the Smartmodem and vise versa.

Except for speed, there's nothing more you could ask of it. The Smartmodem will figure prominently in the development of our Themis electronic mail system. If you need a modem for anything and can settle for 300 baud, there's really no reason to get anything else.



SOFTWARE REPAIRMAN

A short play by
Chuck Ott

[The scene is an office, decorated in the new corporate standard: wicker, plants and earth tones. GAIL sits at a CRT terminal. HENRY sits at desk nearby.]

GAIL: Oh, no! Just when I have some important programming to do, my linking loader goes on the fritz again!

HENRY: Got a problem, Gail?

GAIL: This program won't run in core! The boss wants it by tomorrow, and I don't know what to do! Oh, why does this always happen to me?

HENRY: Well, now, don't get upset. I'm sure we can make it work. You do pretty good with this stuff, for a girl.

[HENRY motions GAIL out of her chair, rolls up his sleeves and sits down in front of the tube. He taps confidently on the keys.]

HENRY: There, now, you see? It wasn't anything so bad, was it? You just had a jump to an odd address. I'll just touch up these two lines here ... and you're all set again.

[As HENRY gets up, GAIL sits and taps the Return key once. She gasps.]

GAIL: Oh, my God, Henry! That just wiped out the disk buffer! It's going crazy!

HENRY: You goofed it up again, eh? Well, don't bother your pretty little head about it. You just let me handle this.

[He sits at the tube again.]

HENRY: I think we'll just save your file here, and then reboot the system so that we take care of ... whoops, heh heh, looks like that wasn't it. Probably it just needs to cut down the number of tasks running ... hmmm. You know, I once saw a case like this back in my last company ...

[HENRY peers at the tube for a moment, then reaches out and whacks it smartly on the side.]

GAIL: Oh, you bumbler! I'm going to call for the Software Repairman!

HENRY: I can take care of it! Don't go flying off the handle just because we have some ...

[There is a loud knock at the door and SOFTWARE REPAIRMAN slouches in. He is an elderly Swedish man with a drooping mustache. He wears thick-soled boots, blue-striped overalls and a blue railroad cap. He carries a Hewlett-Packard logic analyzer by the handle in one hand, his lunch pail in the other.]

REPAIRMAN: Hiya, folks! Hyuh got a trouble wit' yur software? Vell, ve get'er all fixed up good, yuh betcha.

GAIL: Software Repairman! Thank heavens you're here!

[REPAIRMAN sits down at the tube. HENRY gets up sullenly.]

REPAIRMAN: Hey, how about dot Roberto Duran, hey? He one goot boxer, I t'ink. Sure whop dot Robinson fella, hey? ... Now wot's dis?

[He turns indignantly to face the other two.]

REPAIRMAN: Hyuh been tryin' to fix dis yourselfs, ain't hyuh? Py jiminy, I ban got to vork twice as hard when some fumble-fingers been in here tinkin' he knows better dan old Claus de Software Repairman, efen if I been learnin' this for fifty years. ... Now look at dis! Hyuh is let yourselfs get CPU-bound, t'rashin' pages in and out de core! Hyuh been abusin' dis machine?

HENRY: Of course not! Our operating system is designed to prevent that.

REPAIRMAN: Hoo, boy! Your operating system? Hyuh got a PDP-11/70 wit' a home-made operating system? RSX-11 ain't goot enough fer hyuh, is dot it?

HENRY: RSX-11 doesn't support all the features we need in our application.

REPAIRMAN: Yah, sure. Hyuh t'ink yuh know better dan yer elders. Yuh t'ink yuh gonna save a few dollars py usin' dis cheap-chack operatin' system. Vell, let me tell you, it always pays to buy quality. If a t'ing is vorth doin', my poppa used to say, it vorth doin' vell.

GAIL: FRUCTOS gives us trouble all the time.

REPAIRMAN: Yah, hyuh betcha! An den you t'ink old Software Repairman, he can come in and fix it up fer hyuh. Vell, maybe so, maybe not. It look like hyuh got a problem vit' yer time-slicing allocator. Cost hyuh a bunch o' money, I betcha.

[SOFTWARE REPAIRMAN hunches over the keyboard and begins typing furiously, mumbling to himself.]

REPAIRMAN: Py jiminy, I ban seen better maintenance on IBM systems dan dis. Dis is a dis-

grace! Py damn, hyuh'd t'ink old software repairman got nottin' to do all day long dan clean up odder people's messes. I been to college, hyuh know, an' I don't need dis job so bad. Look at dis, hyuh got GOTO's dot I don't know where dey go to. Teen-age visenheimer programmers don't know from structure or nottin'. Oh, ho! Bugs you got in der terminal!

[REPAIRMAN swats a bug crawling on the tube.]

AIL: It makes me feel better just knowing you're on the job, sir.

HENRY is about to boil over.]

ENRY: I've had enough of this. This company loses ten thousand dollars an hour when that computer's down. I'm going to call DEC service. We don't need this old charlatan!

HENRY goes off to the phone.]

AIL: Can I get you a cup of coffee, Software Repairman?

REPAIRMAN: No, t'anks. Hyuh got maybe a cold beer an' a shot whisky? Dot's what a working-man like me needs. Also, you got a recent dump, a memory map an' a can 3-in-1 oil?

AIL: 3-in-1 oil?

REPAIRMAN: Dis chair squeak, squeak, squeak, drive me crazy, yah sure.

HENRY comes back.]

ENRY: Well, I talked to DEC. They say they're full up today, and tomorrow's a holiday and they don't work weekends. But they'll try to fit us into the schedule Monday afternoon at the latest unless it's Tuesday morning.

REPAIRMAN taps at a few keys and laughs triumphantly.]

REPAIRMAN: Ah, ha! Here you is! I tol' you ol' software repairman, he can fix it up goot. I found yur problem, I betcha.

AIL: Really? That's wonderful.

HENRY: Well, what is it?

REPAIRMAN: Hyuh got a boo-boo in yur memory management system. Now, let me tell hyuh what I done.

REPAIRMAN swings around in his chair and relaxes, ready for a session of story-telling.]

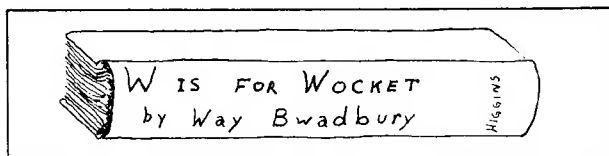
REPAIRMAN: Now, hyuh got a bunch disks on dis system, an' dey act yoost like a filing cabinet. Hyuh know what is a filing cabinet?

HENRY manages a tight nod.]

REPAIRMAN: Goot. Now, when hyuh got a filing cabinet, what you gonna do? You gonna put files into it, an' den hyuh gonna takes files out of it, hokay?

HENRY is getting pretty near the boiling point again.]

REPAIRMAN: So when hyuh put a file into der cabinet, what you gonna do? Hyuh gonna put it in de right place, ain't yuh? Sure you will. Dot's so hyuh can find the file again when you gonna need it. Now, hyuh got a automatic filing system in dis ...



[HENRY grabs the REPAIRMAN and shoves him toward the door.]

HENRY: This is all fascinating, I'm sure, but we really have to get the system back up. Now if you've gotten all the problems taken care of, we'll just get back to work. Thanks very much for stopping by, and we'll call you if we ever need your services again. It's been a pleasure doing business with you, so ...[He shoves REPAIRMAN out the door.] ... so long!

[HENRY turns to GAIL.]

HENRY: Sweet Lord, how did we ever get into third-party maintenance? Let's see what damage he did.

[HENRY sits down at the tube, taps a few keys and looks incredulous. GAIL looks over his shoulder.]

HENRY: Boy, if that isn't always the way it is! You call in a repairman and he screws things up worse than they were before. Now I've got no keyboard response at all! It's dead.

[GAIL reaches forward and presses a switch.]

GAIL: Henry, you have to turn it on.

[End.]

The Tinkertoy Project by Jeff Duntemann

Project Tinkertoy is underway.

We spoke about it in Denver: The GT contribution to Chicon would consist of a Tinkertoy Pit; that is, a circular area of floor somewhere perhaps twenty feet in diameter, roped off and padded so people can sit comfortably without chairs. In a number of cardboard boxes within the pit would be an essentially unlimited supply of tinkertoys, and the invitation would be out to revert joyously to your youth and actually live the fantasy of Never Ever Running Out of Parts.

Now that's a lot of tinkertoys, but consider

"Frisbee Finger?"



Now There's

FRISBANE

PREPOSTEROGENIC ACID 6% OINTMENT

Doctors, when the pain and heartbreak of "frisbee finger" strikes, your patients will appreciate the cooling comfort of *Frisbane*. *Frisbane* helps relieve soreness, redness, trendiness and pain, and is greasy and smells bad. *Frisbane* also has a useful placebo effect due to our misleading national advertising campaigns.

Possible drug interactions: *Frisbane* should not be prescribed for your patients who drink Pepsi-Cola. **Possible overdose side effects:** Tennis Elbow, Washerwoman's Knee.

Application: Coat entire body with ointment daily except national holidays.

Another Innovation From

TickTockTech

Up-to-the-Minute Technology!

this: The great demographic bulge of the baby-boom babies now hovers around age 26 or so, most of whom have long since left home and longer since given up tinkertoys. In the basement closets of untold numbers of middle-class American houses must be untolder numbers of tinkertoy sets abandoned by the baby boom, awaiting the day when Dad retires and starts pitching all the stuff Junior and Sis left behind.

So here's the plan, kids: Scrounge tinkertoys like they never been scrounged before. Back in 1973 I put an ad in a local freebie ad paper for busted TV sets to tear apart and filled the garage twice--for free. Hang index cards on the Jewel bulletin board asking for tinkertoys, any condition. We have a good hook--after Chicon the Chicago GT contingent will split the metric ton of tinkertoys into manageable sets, bag them, and donate them to the pediatrics departments of local hospitals, and maybe get a little newspaper coverage and some community brownie points.

Put up notices in supermarkets, bookstores, local ad papers, anywhere you can get cheap or free exposure. If you're gutsy get a plug on the "community calendar" broadcasts on most radio shows. Ask Mom and Aunt Florence and Uncle Freddie, anybody who used to have kids that ain't kids no more.

Send the tinkertoys by whatever means you can to

Gretchen & Doug Van Dorn
7619 West Clarence Avenue
Chicago IL 60631

They are acting as concentrator and storage point for the tinkertoys.

Now, as a backstop for scrounge, I am pledging to buy \$20 worth of tinkertoy sets to donate to the cause. You wealthier GTers can do the same; since it's going to charity when it's over you might even be able to claim it as a deduction. I think almost everybody in GT could buy even a small set and mail it to Gretchen & Doug as a starter.

Nobody's ever done anything like this before at a Worldcon. Do your part. Be a kid and a techie again, simultaneously! Corner some tinkertoys!

Editor's Note

Some of you are probably wondering what happened to the "fancy-schmancy typesetting" that was promised for this issue. Alas, that plan has been a victim of the recession; I no longer have unlimited access to typesetting equipment. I was able to set a few things here and there for this issue, but the big article on computer typesetting that was to have been the centerpiece of this issue will have to be put off ... too bad, ya woulda liked it.

Letters of comment about this issue should be sent to Jeff Duntemann at the address below.

My grateful thanks to everybody who contributed to this issue, and my apologies to those contributors whose material couldn't be used for lack of space. Thanks one and all!

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INPUT INPUT FORM

FOLLOW INSTRUCTIONS CAREFULLY: Use Form 7 to input inputs into the system. Information input here will be used by the user to use the user's previously input inputs to generate the necessary updates. These updates will be updated according to the updated update codes as entered on Input Form 5. The user may use this form to input any desired input (see Appendix Q).

ENTER THE FOLLOWING ENTRIES:

- A. **Company Code** — As entered on Input Form 1.
- B. **Remark Code** — As entered on Input Form 6.
- C. **Code Code** — A three (3) digit code to identify this code.
- D. **Description** — Maximum 45 characters.

TO DELETE A CODE FROM THE INPUT INPUT FORM,
USE THE DELETE UPDATE CODE FROM INPUT FORM 5.

INPUT FORM 7. PREVIOUS VERSIONS OF THIS FORM ARE OBSOLETE AND MAY BE USED.

Jeff and Carol Duntemann
301 Susquehanna Road
Rochester, NY 14618

Lisa
Golladay & Co.

